

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

A1-1378

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/890671

INTERNATIONAL APPLICATION NO.

PCT/GB00/00326

INTERNATIONAL FILING DATE

4 Feb. 2000 (04.02.00)

PRIORITY DATE CLAIMED

6 Feb. 1999 (06.02.99)

TITLE OF INVENTION

PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL

APPLICANT(S) FOR DO/EO/US

JENKINS, Gary John

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☒ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information: Postcard

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Stephane L. Lefebvre



518 Rec'd PCT/PTO 03 AUG 2001

09/890671

U.S. APPLICATION NO. (37 CFR 1.53)

INTERNATIONAL APPLICATION NO.
PCT/GB00/00326

JC05 Rec'd PCT/PTO

03 AUG 2001

ATTORNEY'S DOCKET NUMBER
A1-137821. ☐ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO. **\$1000.00**International preliminary examination fee (37 CFR 1.482) not paid to
USPTO but International Search Report prepared by the EPO or JPO **\$860.00**International preliminary examination fee (37 CFR 1.482) not paid to USPTO
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **\$710.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
but all claims did not satisfy provisions of PCT Article 33(1)-(4) **\$690.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
and all claims satisfied provisions of PCT Article 33(1)-(4) **\$100.00****ENTER APPROPRIATE BASIC FEE AMOUNT =**Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	- 20 =		x \$18.00	\$
Independent claims	- 3 =		x \$80.00	\$
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$

TOTAL OF ABOVE CALCULATIONS =☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above
are reduced by 1/2. +**SUBTOTAL =**Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).**TOTAL NATIONAL FEE =**Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **\$40.00** per property +**TOTAL FEES ENCLOSED =**

Amount to be refunded:	\$
charged:	\$

- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.
- c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. _____. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card
information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

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Hartman and Hartman, P.C.
552 East 700 North
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SIGNATURE

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NAME

33,898
REGISTRATION NUMBER

09890671 061902
09/890671

JCS Rec'd PCT/PTO 03 AUG 2001

<p align="center">CERTIFICATE UNDER 37 CFR §1.10</p> <p>I hereby certify that this document is being deposited with the U.S. Postal Service as "Express Mail Post Office to Addressee" addressed to the Assistant Commissioner for Patents, Washington DC 20231, on</p> <p><u>August 3, 2001</u></p> <p>"Express Mail" Label Number: <u>EL 916 998059 US</u></p> <p>Domenica N.S. Hartman <u>Domenica NS Hartman</u></p>

PATENT
Docket No. 0121-JR

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Gary J. Jenkins

Group Art Unit

Serial No.

Examiner

Filed Herewith

PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Please amend the above-identified United States patent application as follows:

Docket No. 0121-JR

In the Specification:

Please insert headings as requested below, and delete and replace those paragraphs identified below with the following “replacement” paragraphs. A version of each replacement paragraph, marked up to show all changes relative to the previous version of the replaced paragraph, is contained on separate page(s) attached hereto as Appendix A.

On page 1, the title of the invention has been replaced by the following title:

PACKAGING TRAY FORMED FROM ABSORBENT MATERIAL

On page 1, following the title of the invention, insert the following:

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of International Application No.

PCT/GB00/00326, filed February 4, 2000.

On page 1 at line 4, the heading has been replaced by the following headings:

BACKGROUND OF THE INVENTION

(1) FIELD OF THE INVENTION

On page 1 and before line 10, insert the following heading:

(2) DESCRIPTION OF THE RELATED ART

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On page 2 and before line 15, insert the following heading:

BRIEF SUMMARY OF THE INVENTION

On page 4 and before line 14, insert the following heading:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 4 and before line 29, insert the following heading:

DETAILED DESCRIPTION OF THE INVENTION

Please insert the attached Abstract after page 11 of the application.

Docket No. 0121-JR

In the Claims:

Please rewrite claims 1 through 10 and insert new claims 11 through 14 as follows. A version of only the rewritten claims, marked up to show all changes relative to the previous version of the claims, is contained on separate page(s) attached hereto as Appendix A.

1. (Amended) A container having a recess for containing matter, the container comprising:

a wall structure formed of a porous material and having inner and outer surfaces, a base wall, a continuous side-wall upstanding therefrom, and a peripheral rim extending outwardly of the side-wall, the base wall and side-wall delineating the recess of the container;

a fluid barrier film layer at each of the inner and outer surfaces of the wall structure, each of the fluid barrier film layers being formed of a fluid-impermeable material;

an interior space defined within at least a portion of the wall structure between the fluid barrier film layers;

means for enabling fluid flow from the recess of the container into the interior space through the fluid barrier film layer at the inner surface of the wall structure;

means for sealing the interior space from a remaining portion of the wall structure in a fluid tight manner between the fluid barrier film layers and across the thickness of the

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wall structure, the interior space being at least partially filled by the porous material from which the wall structure is made;

wherein a fluid within the recess is able to flow through the fluid flow enabling means and into the interior space where the fluid is retained and prevented from migrating into the remaining portion of the wall structure.

2. (Amended) A container according to claim 1, wherein the porous material from which the wall structure is made has an open cell structure.

3. (Amended) A container according to claim 1, wherein the interior space is limited to the base wall of the wall structure.

4. (Amended) A container according to claim 1, wherein the fluid flow enabling means comprises perforations through the fluid barrier film layer at the inner surface of the wall structure.

5. (Amended) A container according to claim 1, wherein the porous material is an absorbent material.

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6. (Amended) A container according to claim 1, wherein the sealing means is in the peripheral rim of the wall structure.

7. (Amended) A container according to claim 6, further comprising an impervious gas barrier film sealed to the peripheral rim of the wall structure to define a gas-tight closure for the recess of the container.

8. (Amended) A container according to claim 7, wherein the gas barrier film is sealed to the peripheral rim with a seal that is coterminous with the sealing means.

9. (Amended) A container according to claim 8, wherein the seal of the gas barrier film and the sealing means are integral and unitarily formed and comprise an ultrasonic weld.

10. (Amended) A container according to claim 1, wherein the interior space is completely filled by the porous material from which the wall structure is made.

11. (New) A container according to claim 1, further comprising an impervious gas barrier film sealed to the peripheral rim of the wall structure to define a gas-tight closure

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for the recess of the container.

12. (New) A container having a recess for containing matter, the container comprising:

a wall structure formed of a liquid-absorbent porous material and having inner and outer surfaces, a base wall, a continuous side-wall upstanding therefrom, and a peripheral rim extending outwardly of the side-wall, the base wall and side-wall delineating the recess of the container;

a fluid barrier film layer at each of the inner and outer surfaces of the wall structure, each of the fluid barrier film layers being formed of a fluid-impermeable material;

an interior space defined within the base wall between the fluid barrier film layers, the interior space being at least partially filled by the porous material from which the wall structure is made;

perforations through the fluid barrier film layer at the inner surface of the wall structure to enable fluid flow from the recess of the container into the interior space;

a seal that separates the interior space from a remaining portion of the wall structure in a fluid tight manner, the seal being defined by a portion of one of the fluid barrier film layers that extends across the thickness of the wall structure;

wherein a fluid within the recess is able to flow through the fluid flow enabling

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means and into the interior space where the fluid is retained and prevented from migrating into the remaining portion of the wall structure.

13. (New) A container according to claim 12, wherein the seal is defined by a portion of the fluid barrier film layer at the outer surface of the wall structure.

14. (New) A container according to claim 12, further comprising an impervious gas barrier film sealed to the peripheral rim of the wall structure to define a gas-tight closure for the recess of the container.

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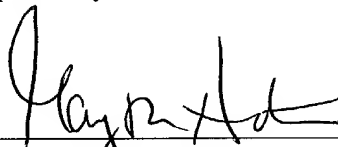
REMARKS

The above amendments to the specification and claims are being presented at this time to provide a title more indicative of the claimed subject matter, cite the parentage of this application, include headings that set forth the different sections of the application and generally comply with US practice, and provide an "Abstract of the Disclosure" on a separate page.

Applicants believe their application is now in better condition for examination, which Applicants respectfully request.

Respectfully submitted,

By



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Attachment: Appendix A; Abstract of the Disclosure

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APPENDIX A
(Page 1 of 4)

VERSION WITH MARKINGS TO SHOW CHANGES MADE¹

In the Specification:

The title of the invention has been revised as follows:

PACKAGING TRAY FORMED FROM ABSORBENT
[ABSORBANT] MATERIAL

The heading at page 1, line 4, has been amended as follows:

BACKGROUND OF THE INVENTION

(1) FIELD OF THE INVENTION [DESCRIPTION]

¹ Brackets “[]” indicate deletions and underlining “ ” indicates insertions.

In the Claims:

Claims 1-10 have been amended as follows:

1. (Amended) A container having a recess for containing matter, the container [(1)] comprising:
 - a [porous] wall structure formed of a porous material and having [on its] inner and outer surfaces, [respective impermeable, fluid barrier film layers (15,18) and being defined by] a base wall [(12)], a continuous side-wall [(13)] upstanding therefrom, and a peripheral rim [(14)] extending outwardly of the side-wall [(13)], the base wall and side-wall delineating the recess of the container; [wherein]
 - a fluid barrier film layer at each of the inner and outer surfaces of the wall structure, each of the fluid barrier film layers being formed of a fluid-impermeable material;
 - an interior space defined within at least a portion of the wall structure between the fluid barrier film layers; [defines an interior space (100) therein,]
 - means for enabling fluid flow from the recess of the container into the interior space through the fluid barrier film layer at the inner surface of the wall structure;
 - means for sealing the interior [which] space [(100) is sealed (17)] from a remaining portion [the remainder] of the wall structure in a fluid tight manner between the [inner and outer] fluid barrier film layers [(15,18)] and across the thickness of the wall structure, the interior space being [and is] at least partially filled by the porous [a] material from which the wall structure is made; [, whereby, in use of the container (1),]

wherein a [any] fluid within the recess is able to flow through the fluid flow enabling means and [absorbed] into the interior space where the fluid [(100)] is retained [therein] and prevented from migrating into the remaining portion [remainder of the interior thickness] of the wall structure.

2. (Amended) A container [(1)] according to claim 1, wherein the porous material from which the [container] wall structure is made has an [is a cellular material, preferably of] open cell structure.

3. (Amended) A container [(1)] according to claim 1 [or 2], wherein the [so-defined] interior space [(100)] is limited to [provided in] the base wall [(12)] of the [container] wall structure.

4. (Amended) A container [(1)] according to claim 1, [2 or 3,] wherein the fluid flow enabling means comprises perforations through the [inner] fluid barrier film layer at the inner surface of the wall structure [(15), at least in the region of the space (100), is perforated].

5. (Amended) A container [(1)] according to [any preceding] claim 1, wherein the porous material is an absorbent material.

6. (Amended) A container [(1)] according to claim [any of claims,] 1, [2, 4 and 5,] wherein the sealing means [interior space-defining seal (17)] is in the peripheral rim [(14)] of the wall structure.

7. (Amended) A container [(1)] according to [any preceding] claim 6, further comprising [which is closed from the atmosphere by] an impervious gas barrier film [(19)] sealed to the peripheral rim [(14)] of the wall structure to define a gas-tight closure for the recess of the container.

8. (Amended) A container [(1)] according to claim 7 [when dependent upon claim 6], wherein the gas barrier film is sealed to the peripheral rim with a seal that is coterminous with the sealing means [(19) and space-defining seal (17) are coterminous].

9. (Amended) A container [(1)] according to claim 8, wherein the seal of the gas barrier film and the sealing means [said coterminous seals (17,19)] are integral and unitarily formed and comprise an ultrasonic weld.

10. (Amended) A container [(1)] according to [an preceding] claim 1, wherein the interior space [(100)] is completely filled by the porous material from which the wall structure is made.

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PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL

DESCRIPTION

5 This invention relates to a container for use in the storage and/or display of products, such as fresh meat and other types of fresh food product, and is related especially, but not exclusively, to a container which is tray-shaped or dish-shaped and which may be made of a plastics material.

10 There is a wide range of existing tray-shaped containers for the storage and display at point-of-sale for, say, fresh meat. In the simplest form, these are made of a single layer of a solid or cellular plastics material

15 During storage of fresh meat and other food products, fluids may exude from the foodstuff and seep in to the internal wall of the container causing undesirable discoloration thereof. In these circumstances, some form of absorbent material may be located upon the inner surface of the base of the container to absorb such fluid and to prevent the seepage of the exuded fluid on to the remainder of the container wall structure.

20 There have been a number of developments and improvements to separate the absorbent material from the food product being packaged. The absorbent material may be sandwiched between a perforated film or sheet and the base of the container or, in another example, the tray is made of a cellular structure which is capable of absorbing fluid if the surface is perforated. The disadvantages of these developments is that the fluid may seep through the absorbent material or through the cellular foam structure and exude from the open rim or flange of the container.

30 Also, some fresh food products, particularly fresh meat products, are stored and displayed at point-of-sale in containers of the type in question with

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a prescribed atmosphere of gas, such as oxygen and carbon dioxide, depending on established practice in modified atmosphere packaging of fresh food products, in which case, the container has to have its normally open top closed and sealed to the rim of the container by means of, for example, a transparent
5 barrier film.

Containers for this use are made from plastics materials which have at least one layer which is an impermeable fluid barrier. This is normally on the inner surface of the container. It is obvious that if this surface is perforated in
10 order to allow juices or liquids, which exude from the packaged foodstuff, to be absorbed on an absorbent material or cellular structure within the base or wall of the container, then the modified gas atmosphere can escape from the container by the same route.

15 It is an object of the present invention to provide a container which overcomes, or at least substantially reduces, the disadvantages associated with the known types of container, particularly those used for the storage of fresh meat and other food products, as discussed above.

20 Accordingly, the invention resides in a container, preferably of tray or dish-like shape, comprising a porous wall structure defined by a base-wall and a continuous side-wall upstanding therefrom, wherein at least a portion of the wall structure defines a space which is sealed in a fluid-tight manner and which is at least partially filled by a material from which the wall structure is
25 made, said at least partially filled space being arranged to retain liquid therein.

By "porous wall structure" is meant, throughout this specification, a wall structure through whose thickness a fluid, namely a gas or liquid, is capable of migrating or otherwise flowing; for example, a wall structure of
30 cellular material of open cell structure.

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The outer surface of the wall structure is preferably provided with an impermeable fluid barrier film layer

5 Preferably, the defined space is sealed from the remainder of the container wall structure by conventional techniques or, for example, by ultrasonic welding, to provide, for example, a continuous space-defining seal between the inner and outer surfaces of the wall structure across the thickness thereof. Also, the space is preferably provided in a base wall of the container wall structure.

10

The space may be completely filled by the material from which the container wall structure is made by, say thermoforming; for example, a cellular material, such as expanded polystyrene, of open cell structure which can preferably absorb a fluid. If, say, the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer, then that layer, in the region of the space, may be perforated to permit fluid in the container to seep or otherwise pass into the space where it can be absorbed by the material of the wall structure or other absorbant material located in the space.

20

In this manner, any fluid such as blood or other fluid exuding from, say, a fresh meat product which is stored and displayed within the container and which migrates into the space defined within the wall structure, is prevented from migrating or otherwise passing further into the thickness of the remainder of the container wall structure.

25

Similarly, any gas(es), provided as prescribed atmosphere within the container and retained therein by an impervious, gas barrier film as a closure for the container, which migrates into the space defined within the container wall structure, usually via perforations in an impermeable, gas barrier sheet layer on the inner surface of the wall structure, is prevented from migrating further through and along the thickness of the wall structure and escaping from

30

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the container via the exposed open edge of the wall structure at the rim or peripheral flange of the container.

5 Additionally, the container may be provided with a peripheral rim or flange attached to the upper edge of the side wall, said space-defining seal may be provided in or across the thickness of the flange or may alternatively be provided along the distal edge thereof.

10 The gas barrier film seal may be effected along the peripheral rim or flange of the container, and in an embodiment the gas barrier film seal and said space-defining seal are conterminous.

15 Embodiments of container in accordance with the invention will now be described by way of example and with reference to the accompanying drawings in which:

Figure 1 is a bottom plan view of a first embodiment of container;

20 Figure 2 is a section along the line II-II in Figure 1;

Figure 3 is a sectional end view of a second embodiment of container;

25 Figure 4 is a sectional end view of a third embodiment of container;
and

Figure 5 is a sectional end view of a fourth embodiment of container.

30 Referring firstly to Figures 1 and 2 of the drawings, a rectangular, tray-shaped container thermoformed from open cell expanded polystyrene sheet, as indicated generally at 1, has a porous wall structure comprising a base wall 12,

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a continuous, tapered side wall 13 upstanding therefrom and an outwardly extending peripheral rim 14. The inner and outer surfaces of the wall structure have thereon respective impermeable, fluid barrier film layers 15 and 18.

5 The inner layer 15 on the base wall 12 of the container 1 is perforated, in a regular array of perforations, as shown at 16, to allow any excess blood and/or other fluids exuding from a fresh meat product placed on the base wall 12 of the container 1, to pass into the thickness of the base wall 12 for absorption therein.

10

 At least the major portion of the base wall 12 of the container 1 is sealed, in a fluid type manner at 17, from the remainder of the wall structure of the container 1 to define a space 100 sealed from the remainder of the wall structure. In this manner, any liquid such as blood and/or any other exuded
15 fluids, absorbed in that sealed space 100 of the base wall 12, is unable to migrate into the thickness of the remainder of the wall structure of the container 1, thereby preventing, or at least substantially reducing, any undesirable discoloration of the remainder of the wall structure and eliminating any seepage of the liquid from the open flange or rim 14 of the
20 container 1.

 As seen in Figure 1, the seal 17 is continuous and generally rectangular in plan, following the profile of the rectangular base wall 12, of the container 1. That seal 17, which is effectively represented by the bringing together, in a
25 fluid-type manner, of the outer surface and inner surface of the base wall 12, such being formed by conventional thermoforming techniques.

 If needs be, the container 1 may be closed, with the associated fresh meat product (not shown) contained therein, by means of a transparent,
30 impervious, fluid barrier film 19 sealed to the rim or peripheral flange 14 of the container 1.

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Thus, any modified atmosphere of, say, oxygen and carbon dioxide gases, within the sealed container 1, is retained therein, as any of the gas(es) is prevented from migrating into and through the thickness of the remainder of the wall structure and escaping from the exposed free edge of the peripheral flange or rim 14.

In use of the container 1, any blood or other fluids exuding from a fresh meat product placed upon the inner surface layer 15 of the base wall 12 of the container 1 will be absorbed into the space 100 defined within the thickness of the base wall 12 but filled with absorbent material from which the container has been thermoformed, is unable to seep into the remainder of the wall structure, due to the continuous seal 17, as discussed above. Thus, undesirable discoloration of the remainder of the wall structure and loss of any modifying gas(es) are eliminated or substantially reduced.

Turning now to Figure 3, a container 30 of similar rectangular form to that described in connection with Figures 1 and 2 is shown. The container 30, which is thermoformed from open cell expanded polystyrene, comprises a base wall 32, a continuous, tapered side-wall 33 upstanding therefrom and an outwardly extending peripheral rim 34. The inner and outer surfaces of the wall structure have thereon respective impermeable, fluid barrier film layers 35 and 38.

The inner layer 35 on the base wall 32 of container 30 is perforated, in a regular array of perforations, as shown at 36, to allow any excess blood and/or other fluids exuding from a product, such as a fresh meat product, placed on the base wall 32 of the container 30, to pass into the thickness of the base wall 32 for absorption therein.

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The wall structure is sealed, at 37, in a fluid type manner to define a space 100' sealed from the peripheral or distal edge of the rim 34. In this manner, any liquid such as blood and/or any other exuded fluids, absorbed in that sealed space 100' of the base and side wall 32 and 33 respectively is
5 unable to migrate to the distal edge of the rim 34 and seep or flow out of the container 30.

The seal 37 is continuous and generally rectangular in plan, following the profile of the peripheral rim 34 of the container 30. The seal 37, which is
10 effectively represented by the bringing together, in a fluid type manner, of the outer and inner surfaces 38, 35, is effected by an ultrasonic weld. Such welds fuse two layers together to provide a fluid tight seal 37 such that liquids and gases cannot migrate across it. In Figure 3, a double ultrasonic weld is used to provide the seal 37. The seal 37 could also be effected by the application of
15 heat and pressure as is conventional in the art, for example during thermoforming of the container 30.

As with the first embodiment, the container 30 may be provided with a transparent impervious, fluid barrier film 39 sealed to the rim or peripheral
20 flange 34 of the container 30. Such a film 39 effectively closes the container 30 and provides a sealed container 30 from which gases and fluids cannot escape, the seal 37 preventing migration from the rim 34 and the barrier film 39 sealing the container 30 from the atmosphere.

25 Figure 4 shows a similar container 40 to that of Figure 3, comprising a base wall 42, a continuous, tapered side-wall 43 upstanding therefrom and an outwardly extending peripheral rim 44. The outer surface of the wall structure has thereon an impermeable, fluid barrier film layer 48, the inner surface being a finishing layer 45 provided on the open cell expanded polystyrene.

The container 40 is provided with an array of perforations, as shown at 46, to allow any liquids seeping or exuding from a product placed on the base wall 42 to flow or migrate into the base wall 42 of the container 40. The container 40 is sealed at 47 by an ultrasonic weld between the peripheral rim 44 and a transparent impervious, fluid barrier film 49.

Thus, any fluid exuding from a product is retained in a space 100'' defined by the thickness of the wall structure 42, 43 and by the barrier film 49. The seal 47 prevents migration of fluids from the distal edge of the rim 44 and the provision of a barrier film 49 seals the container 40 from the atmosphere.

Referring now to Figure 5, there is shown a further embodiment of container 50 comprising a base wall 52, a continuous, tapered side-wall 53 upstanding therefrom and an outwardly extending peripheral rim 54. The inner and outer surfaces of the wall structure have, thereon, respective impermeable, fluid barrier film layers 55 and 58.

The inner barrier film layer 55 is, in the region of the base wall 52 provided with an array of perforations, as shown at 56, to allow any liquids seeping or exuding from a product placed on the base wall 52 to flow or migrate into the base wall 52 of the container 50. The distal edge of the rim 54 is provided with a fluid-tight seal 57 which may be effected by a solvent or a paint applied to that edge. The seal 57 effectively bridges the gap between the inner and outer layers 55, 58 across the thickness of the wall structure at the peripheral edge. Thus a space 100''' is provided, from which liquids contained or retained therein cannot escape. The wall structure is provided by open-cell expanded polystyrene which absorbs liquids which flow into the space 100''' from a product placed on the base 52 of the container 50.

The container 50 may be provided with an impervious, fluid barrier film 59 which is sealed to the rim 54 of the container 50 and thereby closes the container 50, sealing any product contained therein from the atmosphere.

5 In a further embodiment the fluid barrier inner layer 55 of the container 50 may be replaced with a simple finishing layer, the seal 57 being effected between the impervious barrier layer 59 and the outer barrier layer 58, similar to that described with reference to Figure 4, except at the periphery of the rim 54.

10

It is noted that each of the barrier films discussed above comprises a laminate of, for example, five layers of which preferably one constitutes a gas barrier layer, comprising, for example, copolymers of ethylene and vinyl alcohol (EVOH), the other layers being adhesives or stabilising layers. The
15 barrier film layers are applied to the body of open-cell expanded polystyrene in a manner well established in the art.

Thus, it can be seen that all embodiments of the invention provide containers which include spaces which are at least partially defined by their
20 respective wall structures and which are sealed, in a fluid-tight manner, from the remainder of their wall structures, to prevent any fluid from spreading therein to or into the remainder of the container or, from or out of the container, as the case may be. Further, any gas migration along the thickness of the wall structure, or from the container, is at least partially reduced and, in
25 certain circumstances, eliminated.

It is to be appreciated that, although the embodiments of container described above are generally tray-shaped the invention can embody any other shape of container having a porous wall structure.

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CLAIMS

1. A container (1) comprising a porous wall structure having on its inner and outer surfaces respective impermeable, fluid barrier film layers (15,18) and being defined by a base wall (12), a continuous side-wall (13) upstanding therefrom and a peripheral rim (14) extending outwardly of the side-wall (13), wherein a portion of the wall structure defines an interior space (100) therein, which space (100) is sealed (17) from the remainder of the wall structure in a fluid tight manner between the inner and outer fluid barrier film layers (15,18) across the thickness of the wall structure and is at least partially filled by a material from which the wall structure is made, whereby, in use of the container (1), any fluid absorbed into the space (100) is retained therein and prevented from migrating into the remainder of the interior thickness of the wall structure.
2. A container (1) according to claim 1, wherein the material from which the container wall structure is made is a cellular material, preferably of open cell structure.
3. A container (1) according to claim 1 or 2, wherein the so-defined interior space (100) is provided in the base wall (12) of the container wall structure.
4. A container (1) according to claim 1, 2 or 3, wherein the inner fluid barrier film layer (15), at least in the region of the space (100), is perforated.
5. A container (1) according to any preceding claim, wherein the material is an absorbent material.

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6. A container (1) according to any of claims, 1, 2, 4 and 5, wherein the interior space-defining seal (17) is in the rim (14) of the wall structure.
- 5 7. A container (1) according to any preceding claim, which is closed from the atmosphere by an impervious gas barrier film (19) sealed to the peripheral rim (14) of the wall structure.
8. A container (1) according to claim 7 when dependent upon claim 6, wherein the gas barrier film (19) and space-defining seal (17) are
10 coterminous
9. A container (1) according to claim 8, wherein said coterminous seals (17,19) are integral and unitarily formed and comprise an ultrasonic weld.
- 15 10. A container (1) according to an preceding claim wherein the space (100) is completely filled by the material from which the wall structure is made.

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ABSTRACT OF THE DISCLOSURE

A container having a recess defined by a porous wall structure having inner and outer surfaces, a base wall, a continuous side-wall upstanding therefrom, and a peripheral rim extending outwardly of the side-wall. A fluid barrier film layer is disposed at each of the inner and outer surfaces of the wall structure, with an interior space being defined within at least a portion of the wall structure between the fluid barrier film layers. The interior space is at least partially filled by the porous material of the wall structure, and is sealed from a remaining portion of the wall structure in a fluid tight manner between the fluid barrier film layers. The inner fluid barrier film layer is adapted to enable fluid flow from the recess of the container into the interior space, where the fluid is retained and prevented from migrating into the remaining portion of the wall structure.

Figure 1

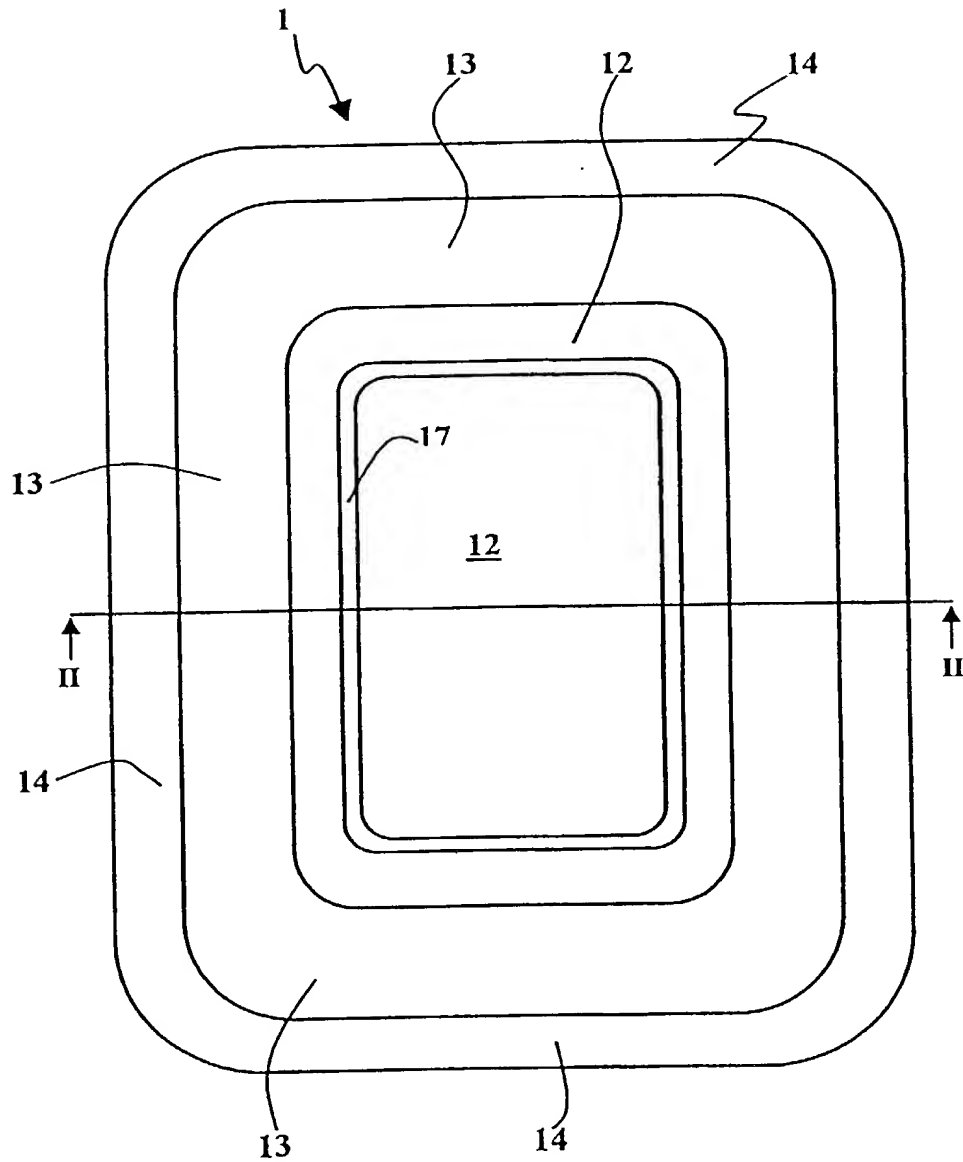


Figure 2

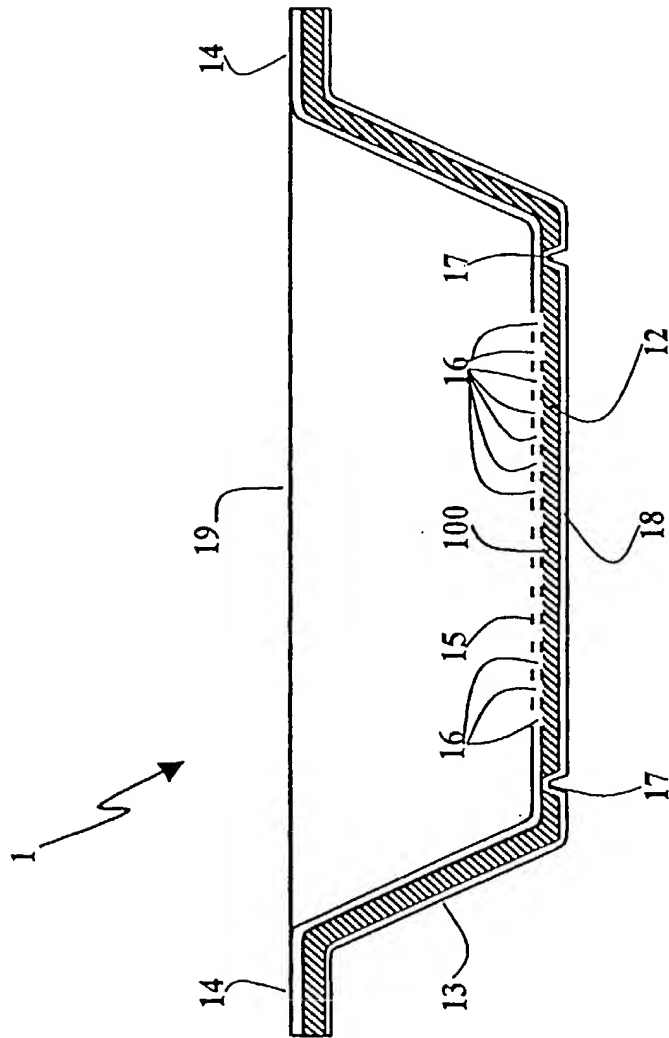


Figure 3

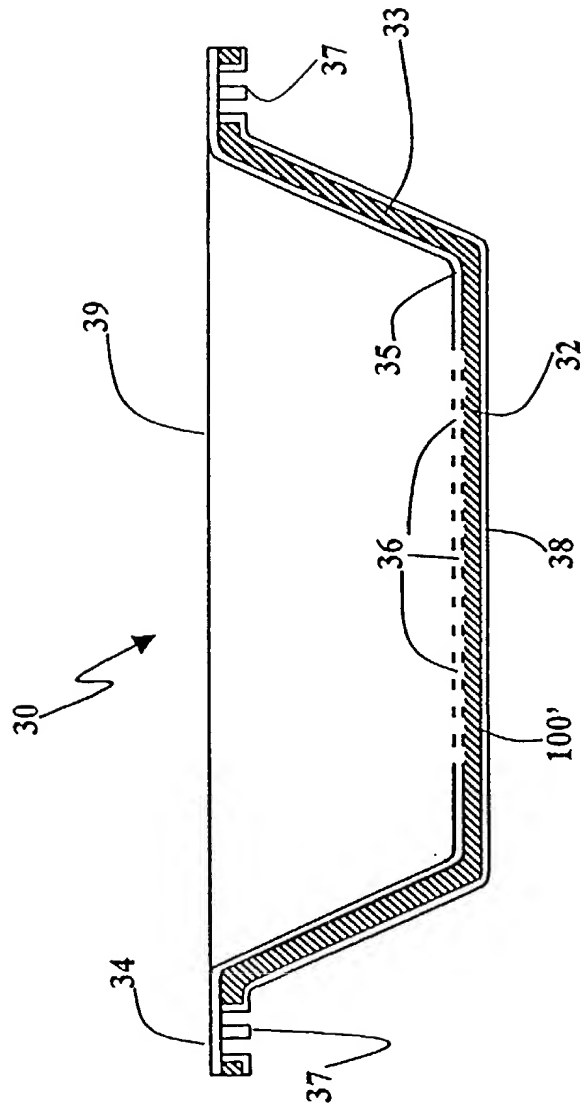


Figure 4

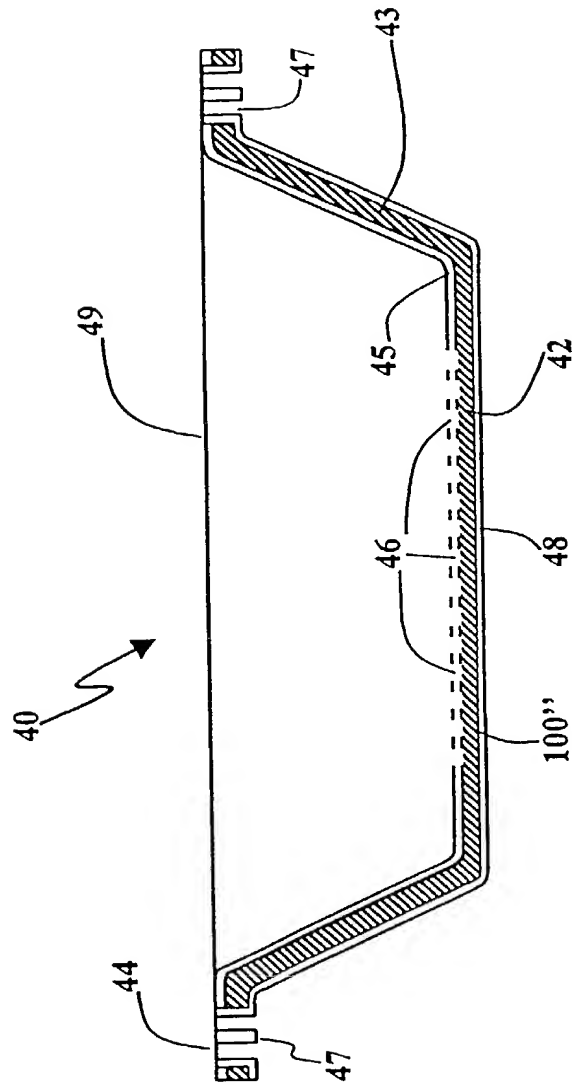
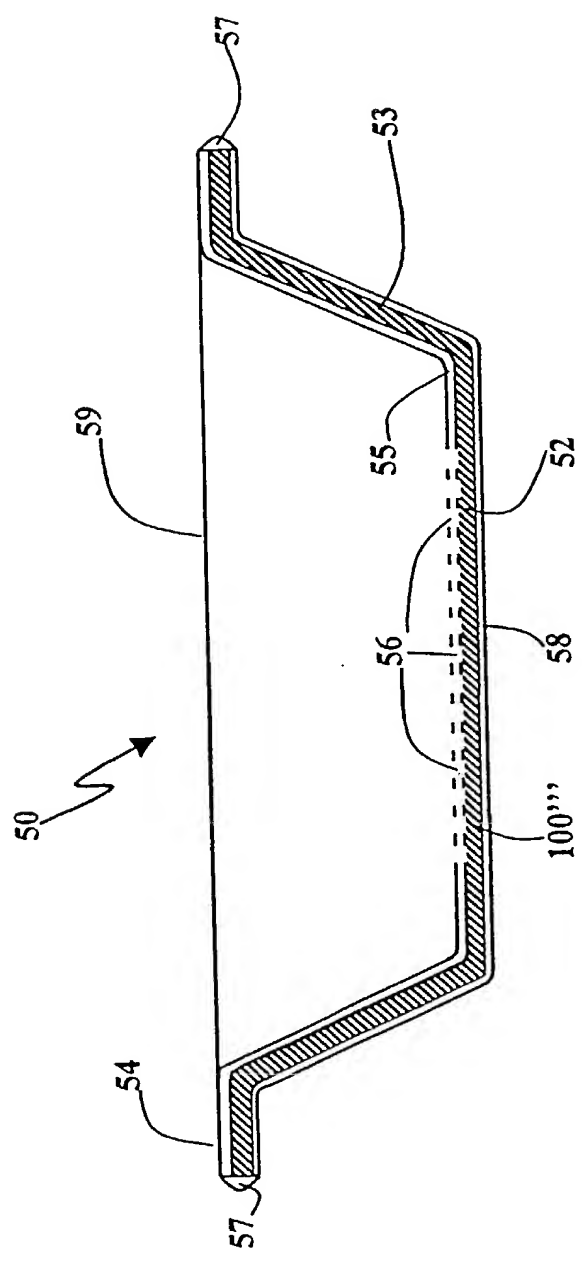


Figure 5



DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe I am an original, first and ☐ joint ☒ sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL

described and claimed in

☐ the attached specification, Attorney Docket No. _____
☒ the specification filed 08/03/01, as U.S. Application Serial No. 09/890,671
claiming priority to International Patent Application Serial
No. PCT/GB00/00326.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as filed and as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I appoint: Gary M. Hartman, Reg. No. 33,898
Domenica N.S. Hartman, Reg. No. 32,701

as my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith.

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I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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Inventor's Residence: _____
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Inventor's Full Name: _____ Citizenship: _____
Inventor's Residence: _____